

Real Differentiation and Simplicity with Velocloud SD-WAN

Guido Frabotti
Solution Architect

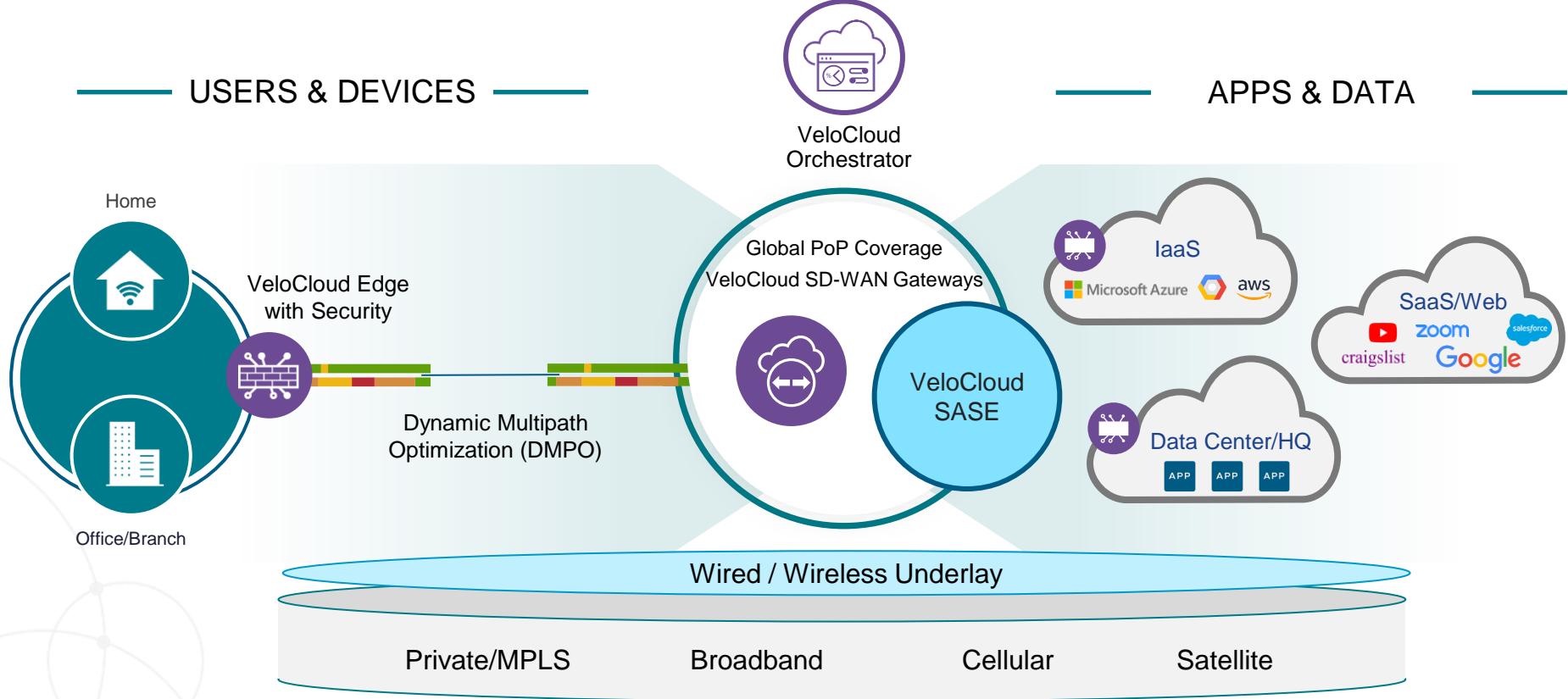


Agenda

- **Introduction: Why VeloCloud ?**
- **VeloCloud Gateways: Optimized path to SaaS & Internet (with SASE as well).**
- **SaaS access made easy.**
- **Packet-based versus Flow-based solutions on multiple or single links.**
- **Cluster and C2C (Cluster to Cluster).**
- **Branch Security.**
- **Introducing AI (VeloRain/VeloBrain).**

Why VeloCloud SD-WAN?

Simplifying networks, enhancing performance, and enabling business agility.



velocloud™
by Broadcom

WW Gateways & SASE

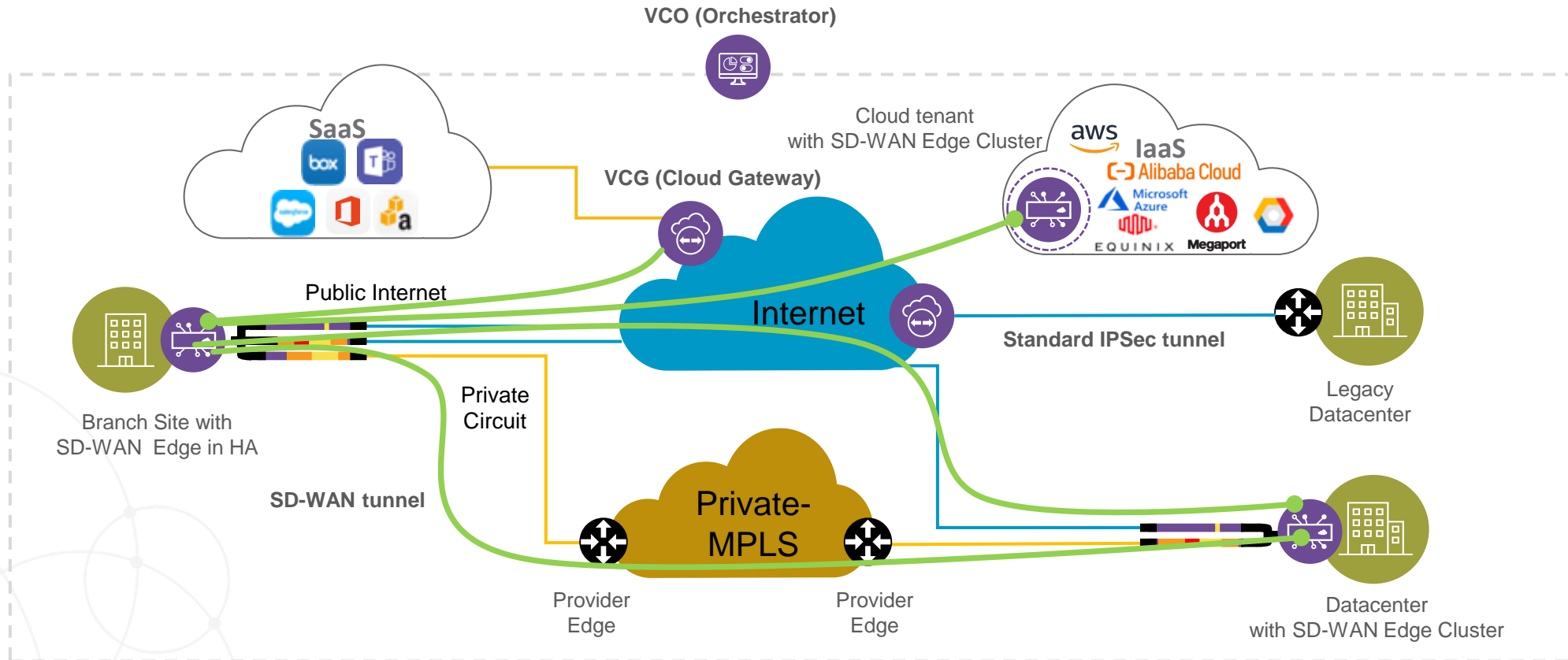
Per-packet steering & on-demand remediation (DMPO)

Cluster and C2C

Enhanced branch security and AI

Enterprise Architecture

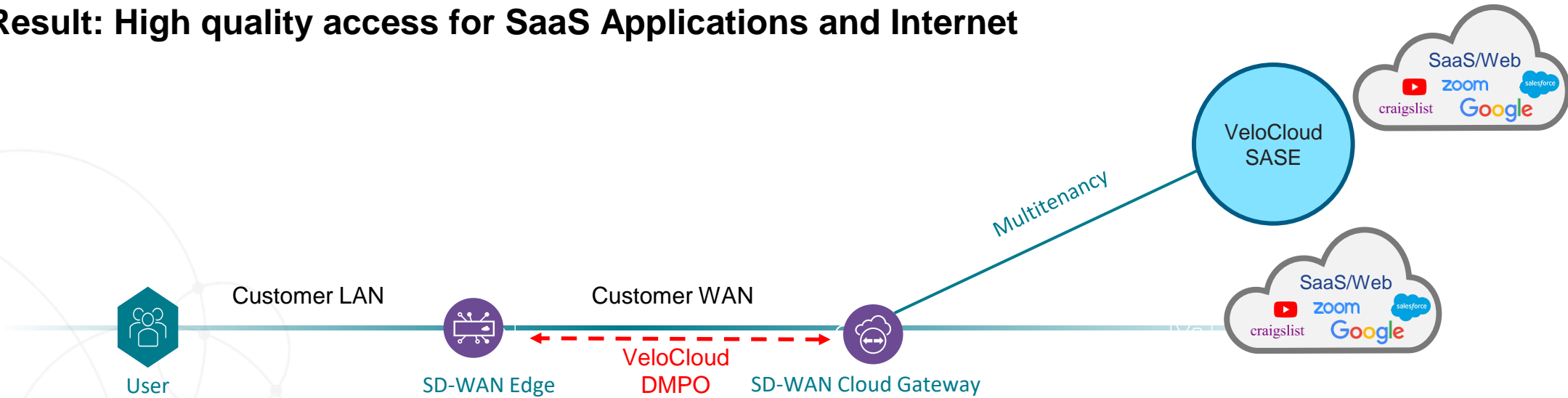
VeloCloud SD-WAN as a Service



Gateway Value Proposition

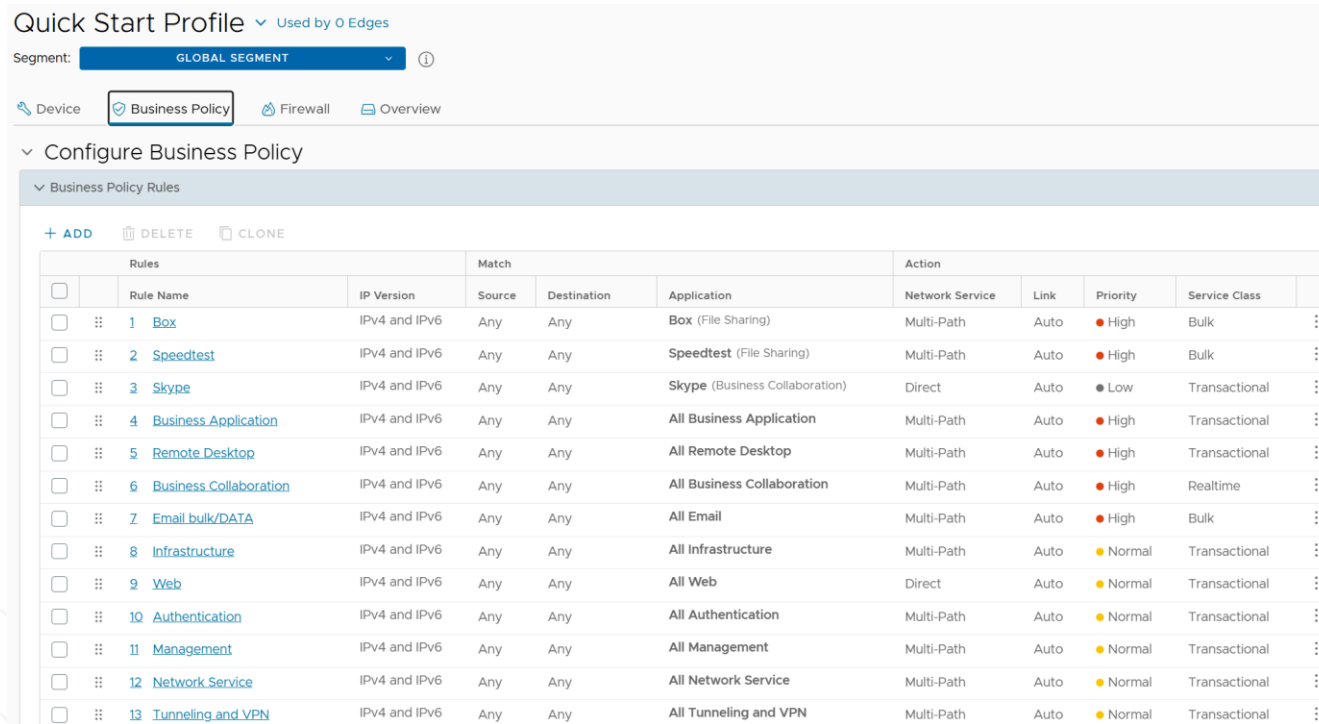
Better performances for SaaS and Internet traffic

- Gateways deployed in hundreds of POPs worldwide
- Customer SaaS and Internet traffic is carried from Edge to closest Gateway
- Dynamic Multipath Optimization (DMPO) performs per-packet steering and error correction to remediate any issues in the customer WAN
- **Result: High quality access for SaaS Applications and Internet**



SaaS access Configuration simplicity

- SaaS access configuration with Velocloud (Smart Defaults Out Of The Box):



Quick Start Profile Used by 0 Edges

Segment: GLOBAL SEGMENT

Device Business Policy Firewall Overview

Configure Business Policy

Business Policy Rules

+ ADD DELETE CLONE

Rules			Match				Action				
<input type="checkbox"/>		Rule Name	IP Version	Source	Destination	Application	Network Service	Link	Priority	Service Class	
<input type="checkbox"/>	::	1 Box	IPv4 and IPv6	Any	Any	Box (File Sharing)	Multi-Path	Auto	High	Bulk	⋮
<input type="checkbox"/>	::	2 Speedtest	IPv4 and IPv6	Any	Any	Speedtest (File Sharing)	Multi-Path	Auto	High	Bulk	⋮
<input type="checkbox"/>	::	3 Skype	IPv4 and IPv6	Any	Any	Skype (Business Collaboration)	Direct	Auto	Low	Transactional	⋮
<input type="checkbox"/>	::	4 Business Application	IPv4 and IPv6	Any	Any	All Business Application	Multi-Path	Auto	High	Transactional	⋮
<input type="checkbox"/>	::	5 Remote Desktop	IPv4 and IPv6	Any	Any	All Remote Desktop	Multi-Path	Auto	High	Transactional	⋮
<input type="checkbox"/>	::	6 Business Collaboration	IPv4 and IPv6	Any	Any	All Business Collaboration	Multi-Path	Auto	High	Realtime	⋮
<input type="checkbox"/>	::	7 Email bulk/DATA	IPv4 and IPv6	Any	Any	All Email	Multi-Path	Auto	High	Bulk	⋮
<input type="checkbox"/>	::	8 Infrastructure	IPv4 and IPv6	Any	Any	All Infrastructure	Multi-Path	Auto	Normal	Transactional	⋮
<input type="checkbox"/>	::	9 Web	IPv4 and IPv6	Any	Any	All Web	Direct	Auto	Normal	Transactional	⋮
<input type="checkbox"/>	::	10 Authentication	IPv4 and IPv6	Any	Any	All Authentication	Multi-Path	Auto	Normal	Transactional	⋮
<input type="checkbox"/>	::	11 Management	IPv4 and IPv6	Any	Any	All Management	Multi-Path	Auto	Normal	Transactional	⋮
<input type="checkbox"/>	::	12 Network Service	IPv4 and IPv6	Any	Any	All Network Service	Multi-Path	Auto	Normal	Transactional	⋮
<input type="checkbox"/>	::	13 Tunneling and VPN	IPv4 and IPv6	Any	Any	All Tunneling and VPN	Multi-Path	Auto	Normal	Transactional	⋮

- SaaS access configuration with another popular vendor:

<https://youtu.be/7nBzYblTRQM?feature=shared>

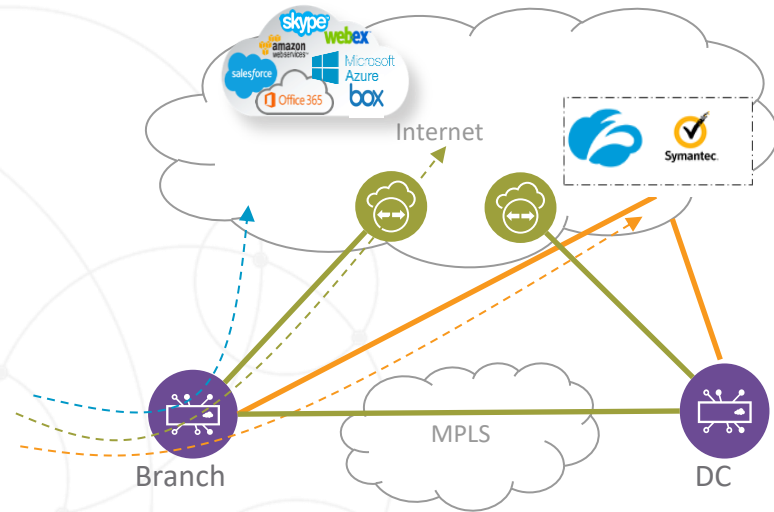
What if public link fails at branch?

Conditional Backhaul

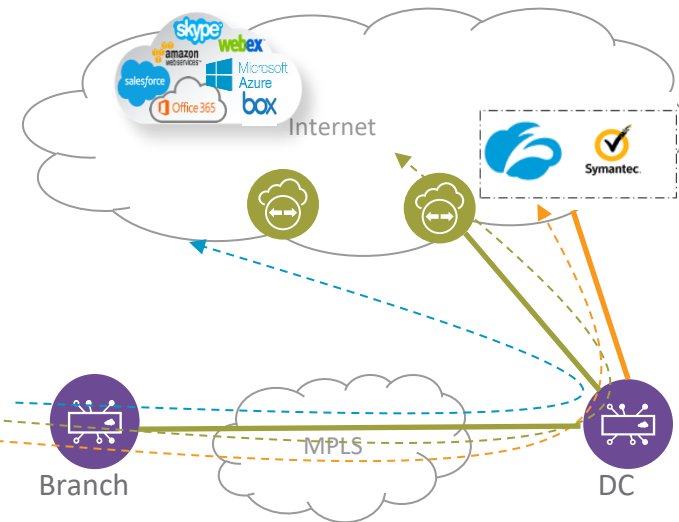
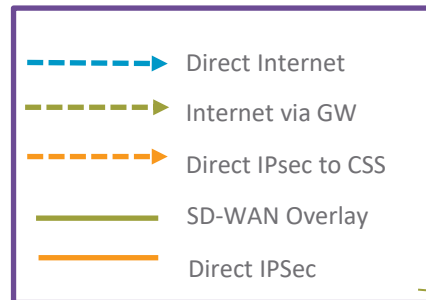
Use Case: For branches with hybrid links, the customer may want to use local Public WAN link for Internet traffic (Direct Internet, Internet via Gateway) and **only** when the Public WAN link is **unusable**, failover to DC for Backhaul.

- Failover happens when Public WAN link goes Down or Quiet (>700ms); it will fail back when Internet link is recovered (within seconds).
- Application aware via business policy to save hub bandwidth usage.
- Internet traffic failed over to the Hub will follow business policy configured on the DC site.

Before Public WAN Link Down
Branch use Public WAN link for Internet traffic

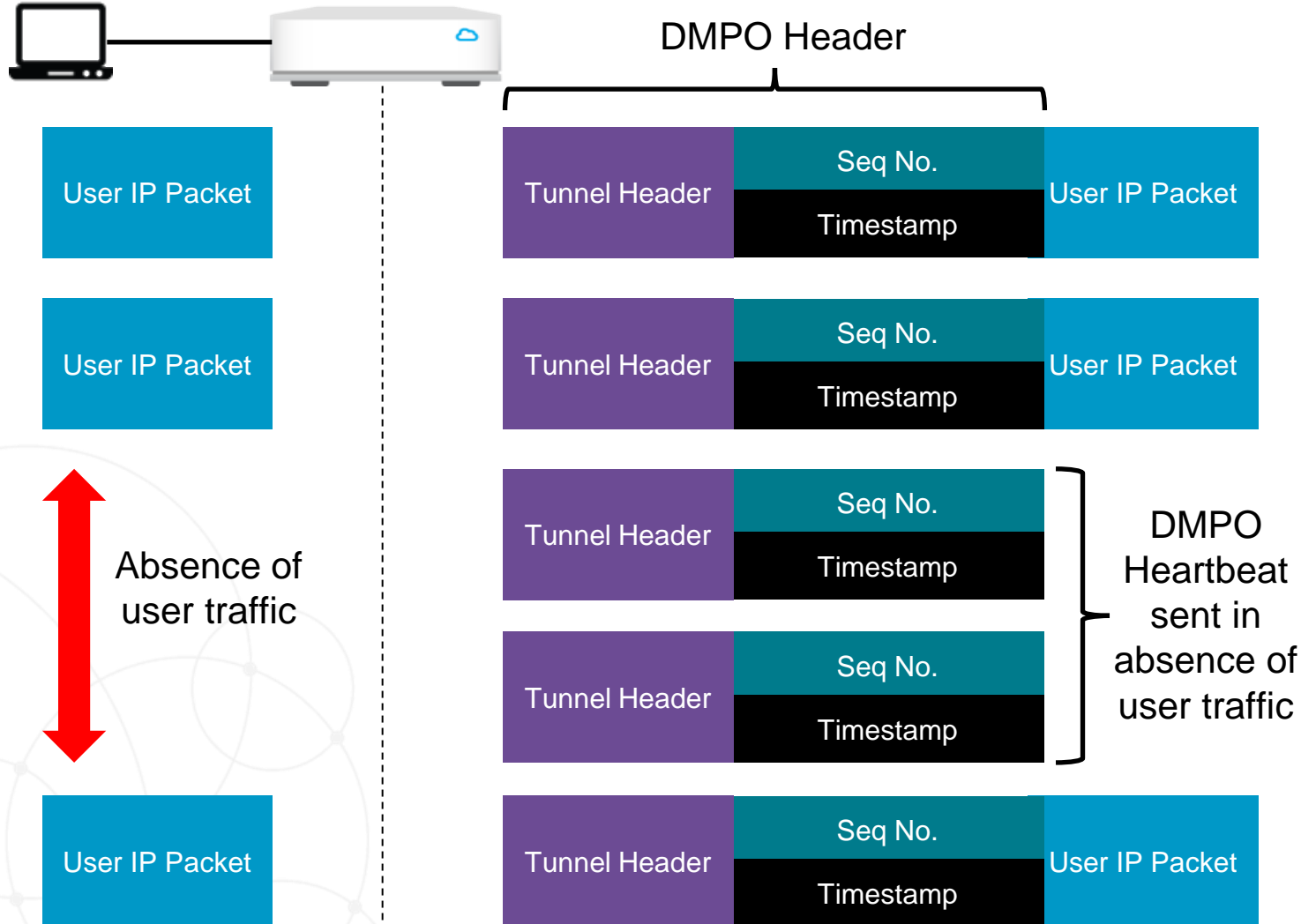


After Public WAN Link Down
Branch send "selected" Internet traffic to Hub via MPLS overlay and follow business policy configured in Hub.



Real Time Tunnel Performance Measurement

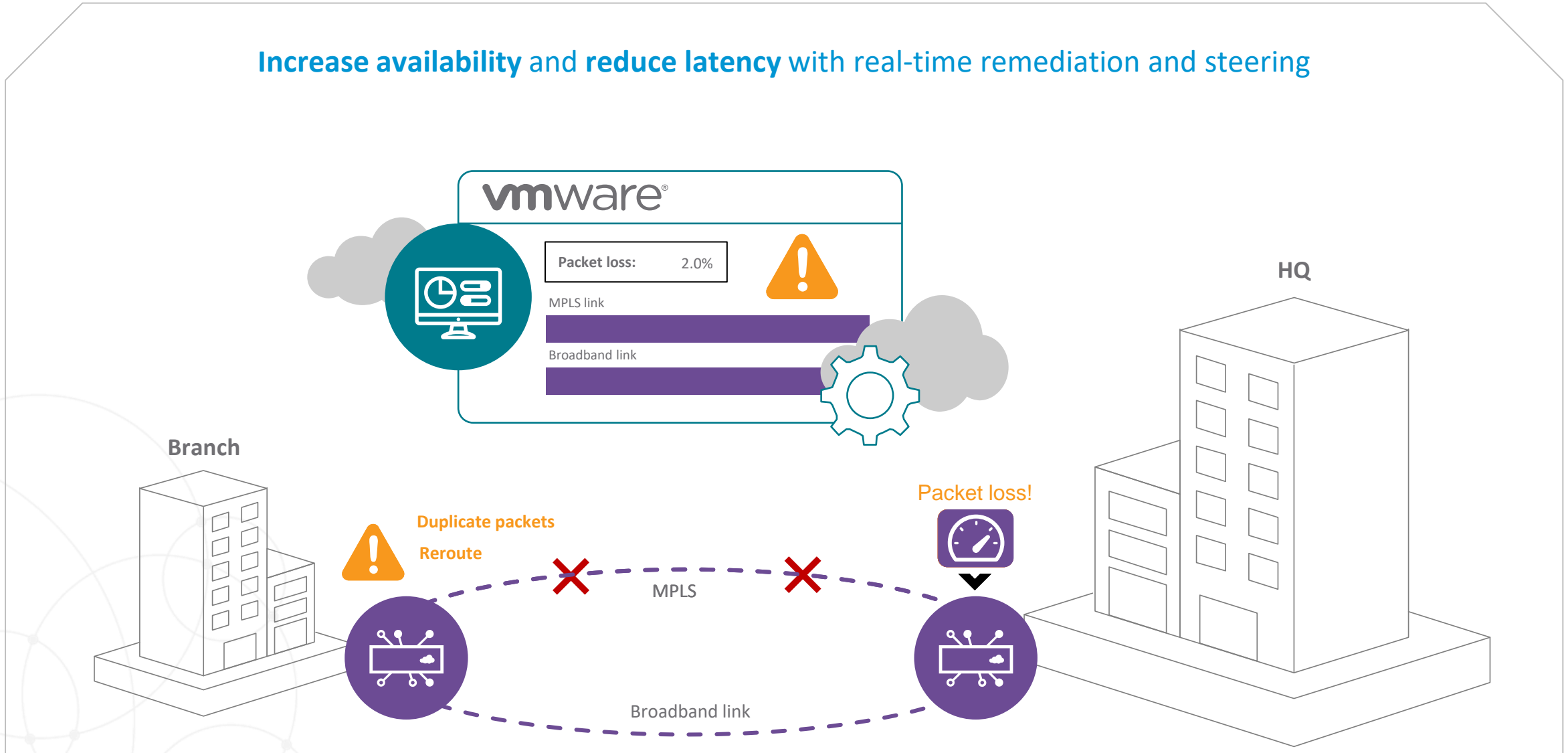
Both passive and active measurement



- User traffic is used for performance measurement
- DMPO header contains sequence number and timestamp
- In absence of user traffic, a heartbeat is sent every 100ms
- DMPO endpoint detects the absence of user traffic and heartbeat as an indication of brownout or blackout

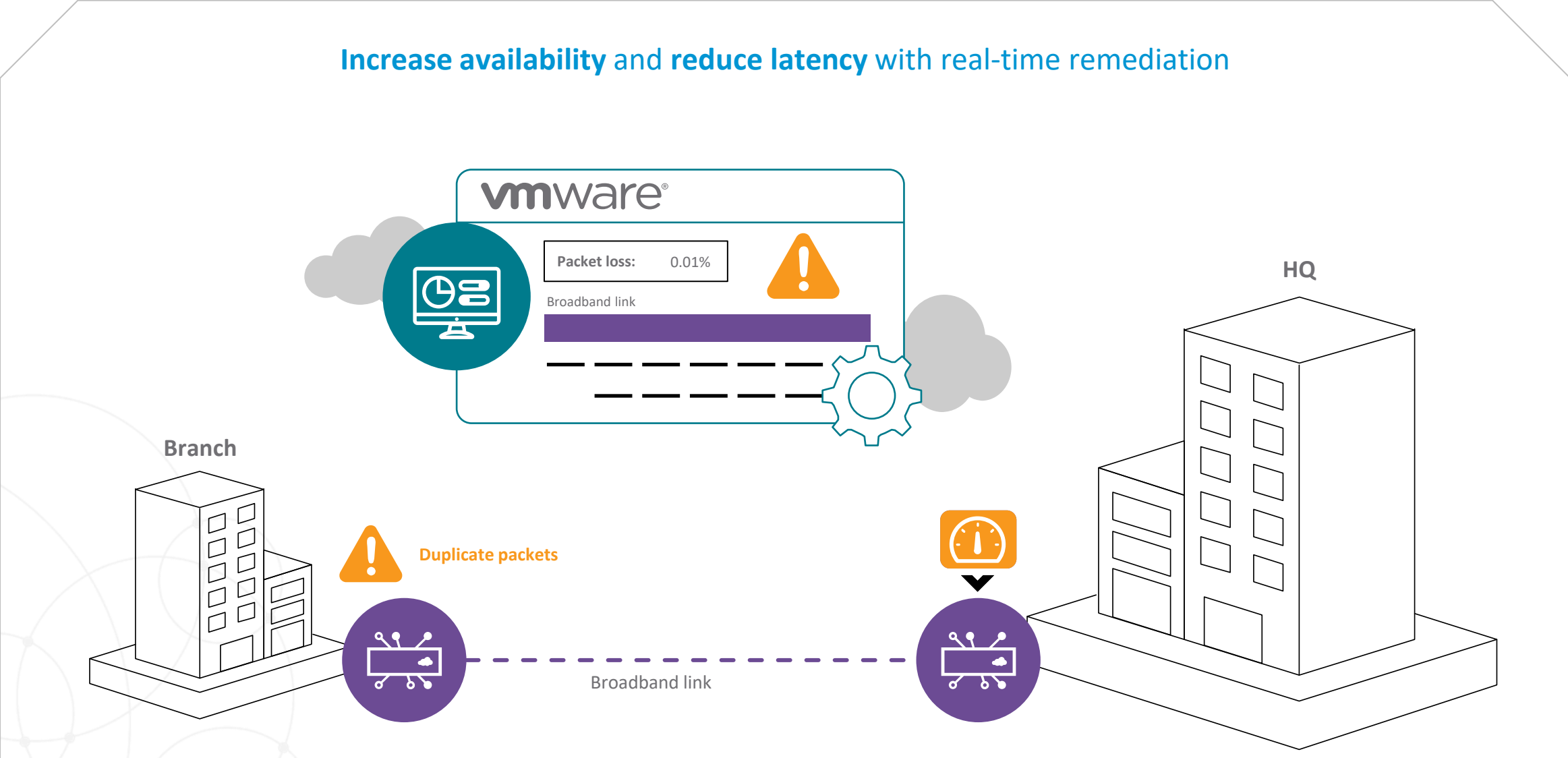
Dynamically route and replicate data on multiple links

Increase availability and reduce latency with real-time remediation and steering



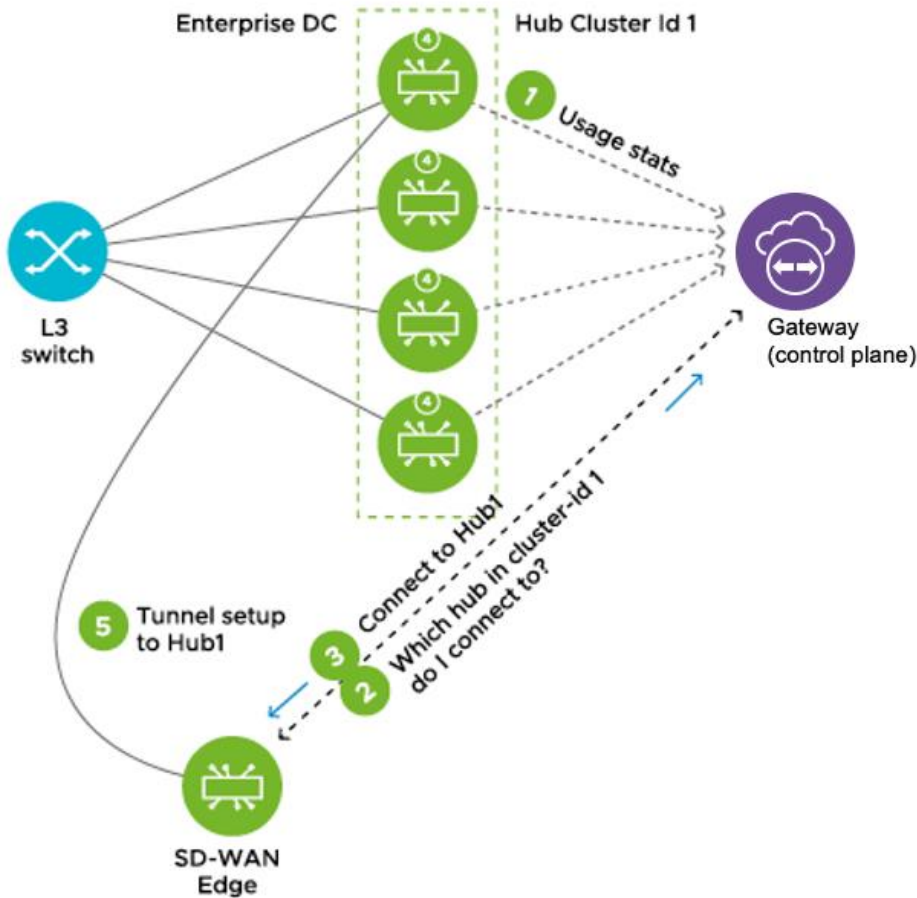
Dynamically replicate data on single link

Increase availability and reduce latency with real-time remediation



Scaling and Redundancy in DC and Cloud

The Cluster



- Cluster is an Active/Active topology
- Redundancy Model is N+1
- Incoming SD-WAN tunnels are load balanced among cluster members based on member load (#tunnels, %CPU, % Mem)
- Control Plane is the Velocloud Gateway
- Peering with underlay topology is through eBGP

What if I have distributed DCs (On-Prem, Cloud)?

Cluster to Cluster!

CUSTOMERS REQUIRE

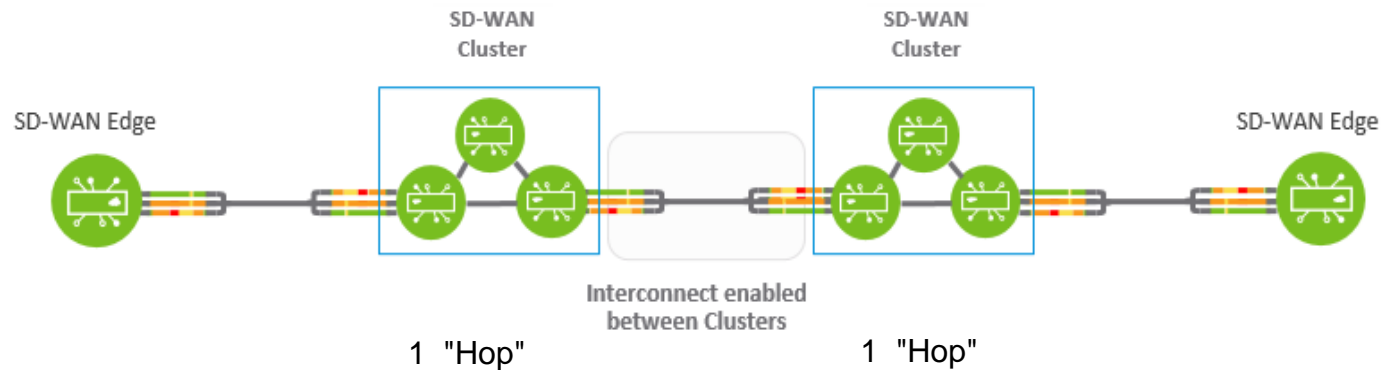
Multiple DC hubs with remote spokes connected to only one DC hub at the time

Migrate workloads from one DC to another DC such as AWS, Azure, GCP or on-prem

VELOCLOUD DELIVERS

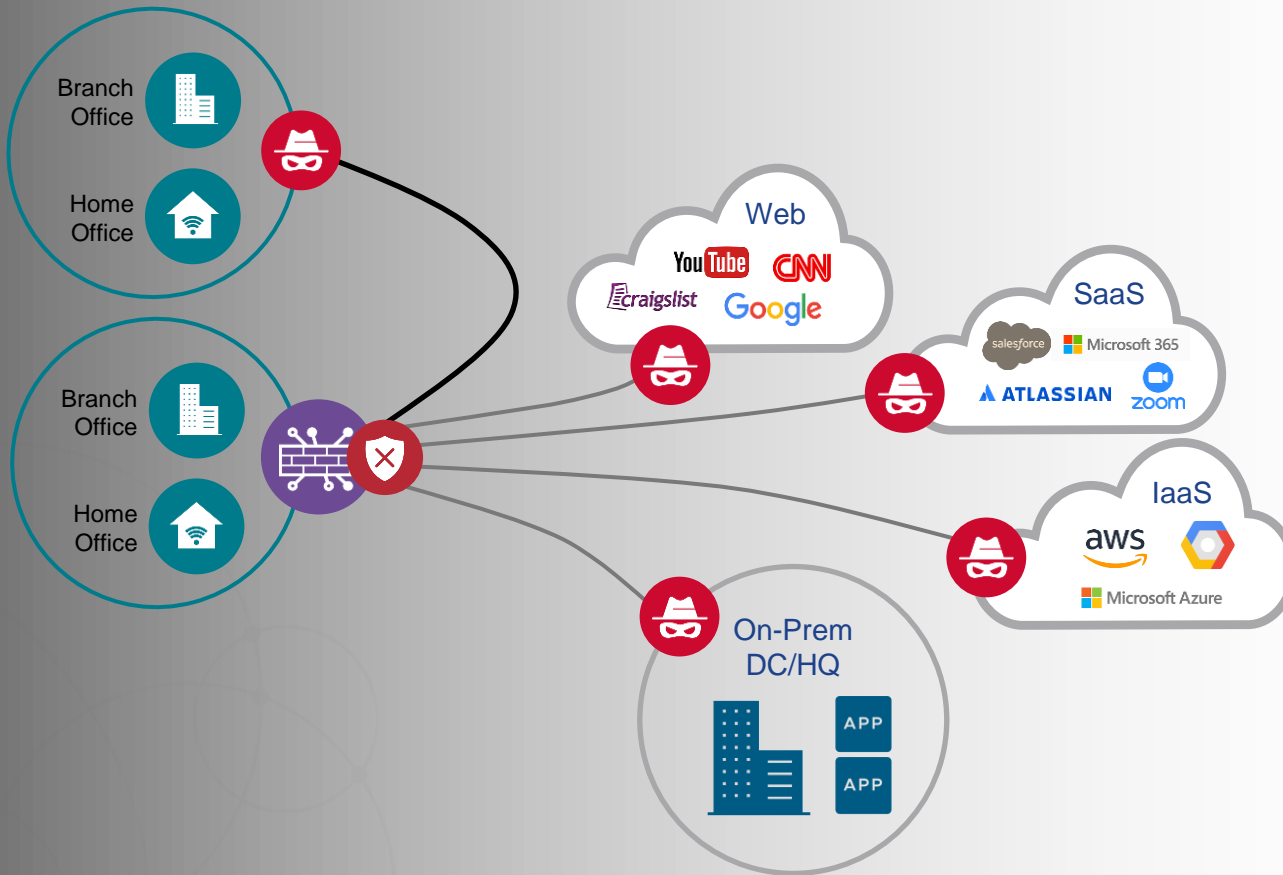
Allow all the spokes to see all the other remote spokes even if served by different clusters

Be able to replicate cluster design in Public Clouds and leave the existing spoke design untouched



Branch Security in a Box

Enhanced Firewall Services



Cost Savings from HW reduction

- Eliminating the need for a separate security FW appliance at each branch
- HW and SW lifecycle management savings

Ease of Operations

- Leverages latest threat intelligence
- Central Pane to manage Policies

Proven Solution

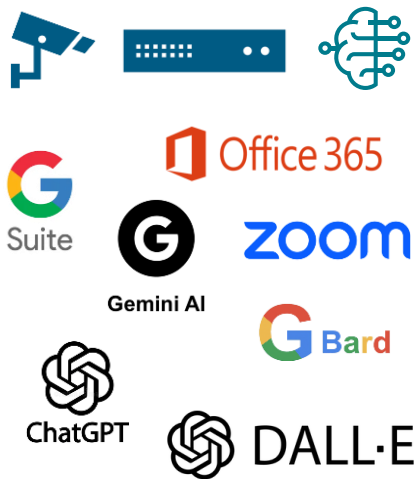
- Powered by VeloCloud Threat Intel Cloud
- Stateful FW, IDS, IPS, URL Filtering, IP Filtering
- Security Monitoring, Reporting & Logging

Introducing VeloCloud RAIN

Robust AI Networking Architecture to Accelerate and Optimize Enterprise AI Workloads



New Edge Apps



Comprehensive Context

AI based App Identification and Profile

User Identity

AI Framework

Dynamic Policy Management

Proactive Remediation

Network Optimization

Dynamic Application Steering

Dynamic Application Based Slicing

VeloBrain <https://veco900-kiad1.velocloud.net/ui/operator>



Thank You

